

Poking Around, Part 1

Do this from your laptop or desktop; ideally with a wired connection.

These commands may require installing cygwin or more cygwin commands.

If you don't have a wired connection, try to investigate anyway.

If you have a hotspot or some other situation, you can do this with a wired friend.

In the worst case, just learn about these commands and write a 1-page report on them.

a) What is your machine's MAC address? Hint: "getmac"

```
C:\Users\elage>getmac

Physical Address    Transport Name
=====
14-7D-DA-38-5B-AB  \Device\Tcpip_{DF05A0DF-60C4-402B-8C0A-A7CA0B834E4A}
14-7D-DA-4D-B6-E6  Media disconnected
```

b) What is your machine's IP address? Hint: "ipconfig"

```
C:\Users\elage>ipconfig

Windows IP Configuration

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : attlocal.net
    IPv6 Address. . . . . : 2600:1700:69f0:9220::49
    IPv6 Address. . . . . : 2600:1700:69f0:9220:a135:91f9:fc96:12a6
    Temporary IPv6 Address. . . . . : 2600:1700:69f0:9220:d8e9:5745:3cb8:77f9
    Link-local IPv6 Address . . . . . : fe80::a135:91f9:fc96:12a6%14
    IPv4 Address. . . . . : 192.168.1.210
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.254

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :
```

c1, c2) How many machines do you think will be listed in your desktop/laptop's IPv4 routing table? How many are there really? Hint: "netstat -r"

➔ My first guess was to have 4 machines. However, as picture below shows, 2 machines are presented. Note that address ending with 0 or 255 are invalid.

IPv4 Route Table

Active Routes:

Network	Destination	Netmask	Gateway	Interface	Metric
	0.0.0.0	0.0.0.0	192.168.1.254	192.168.1.210	40
	127.0.0.0	255.0.0.0	On-link	127.0.0.1	331
	<u>127.0.0.1</u>	255.255.255.255	On-link	127.0.0.1	331
127.255.255.255	255.255.255.255		On-link	127.0.0.1	331
192.168.1.0	255.255.255.0		On-link	192.168.1.210	296
<u>192.168.1.210</u>	255.255.255.255		On-link	192.168.1.210	296
192.168.1.255	255.255.255.255		On-link	192.168.1.210	296
224.0.0.0	240.0.0.0		On-link	127.0.0.1	331
224.0.0.0	240.0.0.0		On-link	192.168.1.210	296
255.255.255.255	255.255.255.255		On-link	127.0.0.1	331
255.255.255.255	255.255.255.255		On-link	192.168.1.210	296

Persistent Routes:

127.0.0.1

192.168.1.210

d) Can you reach all of the machines listed in your routing table? Try pinging them.

127.0.0.1

C:\Users\elage>ping 127.0.0.1

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

192.168.1.210

```
C:\Users\elage>ping 192.168.1.210

Pinging 192.168.1.210 with 32 bytes of data:
Reply from 192.168.1.210: bytes=32 time<1ms TTL=128
Reply from 192.168.1.210: bytes=32 time<1ms TTL=128
Reply from 192.168.1.210: bytes=32 time<1ms TTL=128
Reply from 192.168.1.210: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.210:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

e1, e2) How many hops does it take to reach utep.edu from your desktop/laptop?
Try "tracert". Is the path always the same?

1. Utep.edu

```
C:\Users\elage>tracert utep.edu

Tracing route to utep.edu [129.108.0.145]
over a maximum of 30 hops:

  1    4 ms    3 ms    3 ms    dsldevice.attlocal.net [192.168.1.254]
  2    5 ms    5 ms    5 ms    162-197-186-1.lightspeed.elpstx.sbcglobal.net [162.197.186.1]
  3    5 ms    5 ms    5 ms    76.197.98.88
  4   30 ms   29 ms   29 ms    12.240.210.242
  5   25 ms   29 ms   28 ms    santx21crs.ip.att.net [12.122.30.133]
  6   28 ms   28 ms   29 ms    dlstx22crs.ip.att.net [12.122.2.209]
  7   28 ms   28 ms   29 ms    12.123.18.233
  8   36 ms   30 ms   25 ms    4.68.39.1
  9    *      *      *      Request timed out.
 10   27 ms   46 ms   24 ms    4.71.198.54
 11   28 ms   28 ms   28 ms    aust-napm-core-ae0-540.tx-bb.net [192.124.220.1]
 12   41 ms   41 ms   41 ms    utep.tx-bb.net [192.12.10.74]
 13    *      *      *      Request timed out.
 14    *      *      *      Request timed out.
 15    *      *      *      Request timed out.
 16    *      *      *      Request timed out.
 17    *      *      *      Request timed out.
 18    *      *      *      Request timed out.
 19    *      *      *      Request timed out.
 20    *      *      *      Request timed out.
 21    *      *      *      Request timed out.
 22    *      *      *      Request timed out.
 23    *      *      *      Request timed out.
 24    *      *      *      Request timed out.
 25    *      *      *      Request timed out.
 26    *      *      *      Request timed out.
 27    *      *      *      Request timed out.
 28    *      *      *      Request timed out.
 29    *      *      *      Request timed out.
 30    *      *      *      Request timed out.

Trace complete.
```

```
C:\Users\elage>tracert utep.edu
```

```
Tracing route to utep.edu [129.108.0.145]  
over a maximum of 30 hops:
```

1	4 ms	4 ms	4 ms	dsldevice.attlocal.net [192.168.1.254]
2	6 ms	5 ms	6 ms	162-197-186-1.lightspeed.elpstx.sbcglobal.net [162.197.186.1]
3	5 ms	5 ms	5 ms	76.197.98.88
4	26 ms	29 ms	27 ms	12.240.210.242
5	27 ms	29 ms	30 ms	santx21crs.ip.att.net [12.122.30.133]
6	29 ms	30 ms	22 ms	dlstx22crs.ip.att.net [12.122.2.209]
7	25 ms	30 ms	29 ms	12.123.18.233
8	34 ms	24 ms	24 ms	4.68.39.1
9	*	*	*	Request timed out.
10	24 ms	24 ms	24 ms	4.71.198.54
11	28 ms	28 ms	28 ms	aust-napm-core-ae0-540.tx-bb.net [192.124.220.1]
12	41 ms	41 ms	41 ms	utep.tx-bb.net [192.12.10.74]
13	*	*	*	Request timed out.
14	*	*	*	Request timed out.
15	*	*	*	Request timed out.
16	*	*	*	Request timed out.
17	*	*	*	Request timed out.
18	*	*	*	Request timed out.
19	*	*	*	Request timed out.
20	*	*	*	Request timed out.
21	*	*	*	Request timed out.
22	*	*	*	Request timed out.
23	*	*	*	Request timed out.
24	*	*	*	Request timed out.
25	*	*	*	Request timed out.
26	*	*	*	Request timed out.
27	*	*	*	Request timed out.
28	*	*	*	Request timed out.
29	*	*	*	Request timed out.
30	*	*	*	Request timed out.

```
Trace complete.
```

```
C:\Users\elage>tracert utep.edu

Tracing route to utep.edu [129.108.0.145]
over a maximum of 30 hops:

  1    3 ms    3 ms    3 ms  dsldevice.attlocal.net [192.168.1.254]
  2    5 ms    4 ms    4 ms  162-197-186-1.lightspeed.elpstx.sbcglobal.net [162.197.186.1]
  3   10 ms    6 ms    6 ms  76.197.98.88
  4   27 ms   29 ms   30 ms  12.240.210.242
  5   27 ms   28 ms   29 ms  santx21crs.ip.att.net [12.122.30.133]
  6   32 ms   29 ms   28 ms  dlstx22crs.ip.att.net [12.122.2.209]
  7   28 ms   28 ms   28 ms  12.123.18.233
  8   30 ms   24 ms   24 ms  4.68.39.1
  9    *      *      *      Request timed out.
 10   24 ms   24 ms   24 ms  4.71.198.54
 11   32 ms   64 ms   28 ms  aust-napm-core-ae0-540.tx-bb.net [192.124.220.1]
 12   44 ms   41 ms   41 ms  utep.tx-bb.net [192.12.10.74]
 13    *      *      *      Request timed out.
 14    *      *      *      Request timed out.
 15    *      *      *      Request timed out.
 16    *      *      *      Request timed out.
 17    *      *      *      Request timed out.
 18    *      *      *      Request timed out.
 19    *      *      *      Request timed out.
 20    *      *      *      Request timed out.
 21    *      *      *      Request timed out.
 22    *      *      *      Request timed out.
 23    *      *      *      Request timed out.
 24    *      *      *      Request timed out.
 25    *      *      *      Request timed out.
 26    *      *      *      Request timed out.
 27    *      *      *      Request timed out.
 28    *      *      *      Request timed out.
 29    *      *      *      Request timed out.
 30    *      *      *      Request timed out.

Trace complete.
```

On all cases, the request timed out after 12th time, and the order from 1 to 12 is exactly the same. Also notice that IP address next to character is the same on every time running "tracert utep.edu". I believe that the reason behind that is on server side, the host IP address don't change and in order to access utep.edu, every time have to go through the same path.